REMARKS

The present response amends the specification, drawings, and claims 1-17 in conformity with the following remarks. Claims 1-17 remain pending in the captioned case. Further examination and reconsideration of the presently claimed application are respectfully requested.

Drawing Objections

An objection was lodged against the drawings for various informalities. In response thereto, Applicants provide have amended Fig. 1 in a manner believed to obviate this objection in its entirety. Accordingly, Applicants respectfully request removal of this objection.

Claim Objections

An objection was lodged against the claims for an informality. In response thereto, the phrase "characterized in that" has been replaced with "wherein" in accordance with the Examiner's suggestion. Accordingly, Applicants respectfully request removal of this objection.

Section 102 Rejection

Claims 1-7 and 10-17 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,470,047 to Kleinerman et al. (hereinafter "Kleinerman"). The standard for "anticipation" is one of fairly strict identity. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art of reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); MPEP 2131. Furthermore, anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, as arranged in the claim. *W.L. Gore & Assocs. V. Garlock*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). Using these standards, Applicants submit the cited art fails to disclose each and every element of the currently pending claims, some distinctive features of which are set forth in more detail below.

Kleinerman does not teach or suggest transmission of digital signals between a first unit and a second unit mobile relative to each other. Independent claim 1 describes digital signals sent "between at least one first unit and at least one second unit." To make clear that digital signals are transmitted, claim 1 has been amended consistent with the preamble noting that "data is transmitted as said digital signals."

Contrary to claim 1, Kleinerman clearly requires a modulator 18 (Kleinerman -- Figs. 1-2). As part of the functionality of a modulator, known to a skilled artisan, data is used to modulate a carrier signal and the modulated carrier signal is sent across a channel, such as channel 20 or channel 44 shown in Figs. 1 and 2 of Kleinerman. Importantly, however, Kleinerman supports that which is known to one of ordinary skill in the art when describing a modulator which modulates an analog carrier signal with data symbols output from generator 16 or generator 34 (Kleinerman -- col. 3, lines 43-45; Figs.1-2). The analog signal is modulated by "symbols in the M-ary alphabet and generates the analog signal that is subsequently transmitted over the channel 20" (Kleinerman -- col. 3, lines 42-45). "At the receiver 13, the analog signal from the channel is input to front end circuitry 22 . . ." (Kleinerman -- col. 3, lines 52-55). Thus, the carrier signal is modulated by symbols to "generate an analog signal therefrom" (Kleinerman -- col. 10, lines 21-23). It is the analog signal that is sent to receiver 50, the analog signal 52 being that which is sent across the channel to the receiver front end circuitry 54 (Kleinerman -- col. 10, lines 41-42).

Throughout Kleinerman, reference is made to the well-known modulator technique of modulating a carrier signal, that being an analog signal, and forwarding the modulated analog signal across the channel via a transmitter. Accordingly, Kleinerman specifically teaches away from transmission of digital signals as presently claimed. Given the requirement that the analog signal be modulated according to the specific techniques of the encoder, one skilled in the art would not wish to destroy the intent of Kleinerman by modifying its teachings to that of a digital signal transmission as presently claimed. Therefore, Kleinerman not only fails to anticipate the limitations of independent claim 1, but also cannot render claim 1 obvious.

Kleinerman does not teach or suggest a second unit movable in an arcuate path (i.e., along a rotary joint) relative to a first unit. Independent claim 17 makes clear that the first and second units are mobile relative to each other and, in particular, are mobile along a non-contacting rotary joint. To help clarify this concept, a rotary joint is one that is circular. Thus, the first and second units rotate relative to each other along an arcuate path.

While Kleinerman teaches transceivers that are mobile relative to each other (Kleinerman -- col. 3, lines 11-15; col. 9, lines 50-52; Figs. 1-2), nowhere in Kleinerman is there any suggestion that the transceivers can move relative to each other along an arcuate path. In fact, Kleinerman teaches just the opposite. The transceivers in Kleinerman are described as cellular communication systems or other wireless communication systems (Kleinerman -- col. 3, lines 46-48; col. 9, lines 49-53). As known to one skilled in the art, mobile radio systems are not ones which move along rotary joints, and certainly are not ones which are movable in an arcuate path relative to each other as presently claimed. Absent any suggestion or the possibility of a path associated with a rotary joint or an arcuate path between mobile units, Applicants believe a skilled artisan would not look to Kleinerman for solving communication problems among units that rotate relative to each along an arcuate path. Moreover, a skilled artisan would not look to Kleinerman to solve communication problems within a non-contacting rotary joint as presently claimed.

In addition to the patentability of independent claims 1 and 17, several of the dependent claims are also separately patentable as set forth in more detail below.

Kleinerman does not teach or suggest a coding means for conversion of spectral characteristics of a data stream, or changing power within predetermined spectral ranges. Present claim 3 notes that the coder or coding means set forth in Fig. 1 performs coding in a way that power can be increased or decreased depending on its transmitted spectral range. For example, the transmission channel may have various spectral frequency characteristics. If the channel responds better at low frequency than high frequency, it may be necessary to increase the power output at the high frequency spectral range, while reducing the power output at the low frequency spectral range. *See, e.g.,* page 4, lines 25-30 and page 5, lines 1-6 of the present specification.

Instead of changing the spectral frequency response of the transmitter to offset the frequency response of the channel, Kleinerman specifically describes coding as using a Reed Solomon or Viterbi encoder. The encoder of Kleinerman can perform an interleaving functionality. More specifically, the coder of Kleinerman models the impulse response of the channel (Kleinerman -- col. 4, lines 61-63). An estimate of the noise is made dependent on that model (Kleinerman -- col. 4, lines 65-67). A match between the noise vector statistics and the modeled noise interference template is then made and, using the noise vector statistic that is selected, "noise whitening coefficients" are used in the equalizer of the Viterbi filter/decoder (Kleinerman -- col. 5, lines 36-47; col. 6, lines 13-16). The modeled noise is used to improve the noise whitening model coefficients to improve the filtering process within the equalizer of the Viterbi decoder (Kleinerman -- col. 5, lines 60-64). The filter can be dynamically changed at the receive-end to increase the signal-to-noise ratio seen on that receiver.

Contrary to claim 3, however, nowhere in Kleinerman is there any suggestion of modifying the transmit-end or coding means. In particular, modification is performed on the coefficients of the Viterbi decoder/filter at the receive-end. Moreover, there is no mention in Kleinerman of modifying the coding means to change the spectral characteristics of the data stream at the data source, much less changing power at the source within predetermined spectral ranges as presently claimed.

Kleinerman does not teach or suggest replacing data values at defined positions in the data stream. Present claim 6 describes taking a value from the serial bitstream and replacing that value with another value depending on the transmission characteristics of the channel, for example. Kleinerman describes adding redundancy to the modulated signal or interleaving the symbols that are modulated into the carrier signal. However, adding additional values at the tail end of the modulated signal for redundancy purposes, or adding values in an interleaved fashion between values of the modulated signal, is not the same as replacing values as presently claimed. A person skilled in the art would know the difference between adding values and replacing values.

Kleinerman does not teach or suggest changing a data rate in a serial data stream. Present claim 7 describes a coding means that changes the data rate depending on, for example, the spectral characteristics of the channel. The Office Action alleges that Kleinerman changes the data

rate and refers to col. 23, lines 53-60 for support thereof (Office Action -- page 5). However, a closer reading of Kleinerman makes clear that the data rate does not change. Instead, the transmitter encodes at a particular convolutional encoding rate, and interleaves the transmitted data with the symbols. The coded rate is then burst onto the channel at the same rate for each burst. Thus, when data is being transmitted according to Kleinerman, data is always transmitted at the same rate -- i.e., the burst transfer rate. Nowhere is there any mention in Kleinerman of changing the transfer rate as presently claimed.

Similar to claim 7, claim 10 also describes outputting data at different rates from the coding means to the transmitter. Not only does Kleinerman not suggest changing the transfer rate, but also does not suggest a coder that stores data and outputs the data at different rates to a transmitter before transmitting across the channel. Thus, Kleinerman makes no mention of the subject matter set forth in claim 10.

Kleinerman does not teach or suggest signaling incorrectly transmitted data to said coding means via an additionally provided transmission channel . . . for repeating a transmission of incorrectly received data packages. Present claim 11 describes a decoder which can signal the coding means to repeat a transmission through an additional transmission channel. The Office Action alleges that Kleinerman discloses the subject matter of claim 11 (Office Action -- page 5). Applicants respectfully disagree. Kleinerman merely suggests that the best coefficients are obtained through modeling of the channel, and those coefficients are used by the compensation filter in the receive-end to apply the appropriate noise whitening coefficients within the receiver's equalizer (Kleinerman -- col. 11, line 57 – col. 12, line 11). Nowhere is there any mention within Kleinerman of an additional transmission channel, much less a channel which can receive signals from a decoder back to an encoder as presently claimed.

For at least the reasons set forth above, Applicants believe independent claims 1 and 17, as well as all claims dependent therefrom, are not anticipated by Kleinerman. Accordingly, Applicants respectfully request removal of this rejection.

Section 103 Rejection

Claims 8-9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kleinerman in view of U.S. Patent No. 6,980,539 to Hanada et al. (hereinafter "Hanada"). As discussed above, dependent claims 8 and 9 are believed patentably distinct for at least the same reasons as their base claim 1. Accordingly, Applicants respectfully request removal of this rejection.

Double Patenting Rejection

Claims 1-17 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of Application No. 10/674,876 and claims 1-8 of Application No. 10/674,877. In response thereto, Applicants note that Application No. 10/674,876 has been abandoned. To expedite prosecution, a terminal disclaimer is provided for Application No. 10/874,877 to overcome this rejection. Accordingly, Applicants respectfully request removal of this rejection.

CONCLUSION

The present amendment and response is believed to be a complete response to the issues raised in the Office Action mailed November 29, 2006. In view of the remarks herein, Applicants assert that pending claims 1-17 are in condition for allowance. If the Examiner has any questions, comments or suggestions, the undersigned attorney earnestly requests a telephone conference.

No fees are required for filing this amendment; however, the Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment, to Daffer McDaniel, LLP Deposit Account No. 50-3268.

Respectfully submitted,
/Kevin L. Daffer/
Kevin L. Daffer
Reg. No. 34,146
Attorney for Applicant(s)

Customer No. 35617
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